

PROCEEDINGS  
OF THE  
ACADEMY OF NATURAL SCIENCES  
OF  
PHILADELPHIA.

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1877.

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JANUARY 2, 1877.

Mr. VAUX, Vice-President, in the chair.

Thirty members present.

The deaths of Dr. Jos. Carson and of Mr. F. B. Meek<sup>1</sup> were announced.

The Academy unanimously voted a presentation of thanks to Wm. P. Jenks, Esq., for a portrait of Dr. W. S. W. Ruschenberger, painted in oil by Mr. Wm. K. Hewitt.

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JANUARY 9.

Mr. VAUX, Vice-President, in the chair.

Thirty-nine members present.

The resignation of C. H. Howell as a member was accepted.

The following papers were presented for publication:—

“Unionidæ of Ohio and Alabama.” By James Lewis, M.D.

“On Certain Generic Names proposed by Zittel, Stoliczka, and Zekeli.” By T. A. Conrad.

*On Astrophyllite, Arfvedsonite, and Zircon.*—Dr. GEO. AUG. KÆNIG spoke of the co-occurrence of *astrophyllite*, *arfvedsonite*

and *zircon* in El Paso Co., Colorado. The minerals are imbedded in quartz, which is massive and of a gray color, occasionally stained with iron ochre, especially in specimens taken from the surface. *Astrophyllite* was only known to occur in the syenite of Brevig in Norway, being associated there likewise with *arfvedsonite* and *zircon*. This association of the three species on points of the globe nearly opposite to each other is very interesting. The matrix, however, is flesh-colored orthoclase at Brevig and gray quartz in Colorado.

1. *Astrophyllite*.—In elongated prismatic forms, with a nearly rectangular cross-section, no terminal faces developed. Measurements made on a crystal of a more complicated form lead to a *monosymmetric* interpretation, while Scheerer determined the *astrophyllite* from Brevig to be orthorhombic. Cleavage perfect, parallel to the basal plane, producing micaceous habitus. Hardness = 3. Specific gravity at 15° C. = 3.375.

B. B. fuses easily to a black globule. With microcosmic salt gives reactions of silica, iron, manganese, titanium. Decomposed by hydrochloric and sulphuric acids.

Composition—

SiO <sub>2</sub>	=	34.68
TiO <sub>2</sub>	=	13.58
ZrO <sub>2</sub>	=	2.20
Fe <sub>2</sub> O <sub>3</sub>	=	6.56
Al <sub>2</sub> O <sub>3</sub>	=	0.70
FeO	=	26.10
MnO	=	3.48
K <sub>2</sub> O	=	5.01
Na <sub>2</sub> O	=	2.51
MgO	=	0.30
CuO	=	0.42
TaO <sub>2</sub>	=	0.80
H <sub>2</sub> O	=	3.54

99.91

This leads to the atomistic symbol—

	IV	IV		} II
	Si <sub>13</sub>	Ti <sub>4</sub>		
	II	VI	II	} O <sub>32</sub>
	Fe <sub>3</sub>	Fe	Mn	
	K <sub>2</sub>	Na <sub>2</sub>	H <sub>8</sub>	}

*Note*.—Care was taken to eliminate mechanically admixed *zircon*. The separation of aluminium, titanium, zirconium, was effected by a new colorimetric method (Proceedings American Phil. Soc. Jan. 19, 1876), devised by the speaker.

2. *Arfvedsonite*.—Elongated prisms of the form  $\infty P$ .  $\infty P\infty$ . Angle of prism 124° 30', of cleavage pieces 124° 5'. Color raven black, lustre submetallic, streak lavender blue, H = 6. Specific gravity at 12° C. = 3.433.

B. B. fuses easily. Reaction with the fluxes of silica, iron, manganese, and titanium with difficulty. Not decomposed by

acids at ordinary pressure, and very slowly in sealed tube. Composition—

SiO <sub>2</sub>	=	49.83
TiO <sub>2</sub>	=	1.43
ZrO <sub>2</sub>	=	0.75
Al <sub>2</sub> O <sub>3</sub>	=	trace
Fe <sub>2</sub> O <sub>3</sub>	=	15.88
FeO	=	17.95
MnO	=	1.75
Na <sub>2</sub> O	}	= 8.33
LiO		
K <sub>2</sub> O	=	1.44
MgO	=	0.41
Ignition	=	0.20
		97.97

Atomistic symbol—



3. *Zircon* occurs in tetragonal forms of the combination P. ∞ P. 0 P. Basal plane noticed on all crystals. Color, iron-gray; after treating with hydrochloric acid, of a yellowish flesh-color.

Specific gravity at 12° C. = 4.538.

Composition—

SiO <sub>2</sub>	=	29.70
ZrO <sub>2</sub>	=	60.98
Fe <sub>2</sub> O <sub>3</sub>	=	9.20
MgO	=	0.30
		100.18

The material for analysis was boiled as powder with hydrochloric acid, until no iron was dissolved. This zircon is, therefore, characterized by an exceptionally high percentage of iron.

The material for examination was furnished by Dr. Foote.

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#### JANUARY 16.

The President, Dr. RUSCHENBERGER, in the chair.

Forty-one members present.

*Fertilization of Browallia elata.*—The following communication from Dr. ASA GRAY was read at his request by Mr. Thos. Meehan:—

In a paper communicated to the Academy of Natural Sciences, and printed in the "Proceedings" under date of Feb. 8, 1876, Mr. Meehan, upon exhibiting specimens of *Browallia elata* which had